



October 14, 2005

L-2005-209
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: St. Lucie Unit 2
Docket No. 50-389
Proposed License Amendment
Request for Additional Information Response
Add Steam Generator Repair Method
Westinghouse Electric LLC Alloy 800 Leak Limiting Sleeves

On August 12, 2005, NRC issued a request for additional information (RAI) to obtain needed information for the staff to complete their review. The RAI was previously discussed with the NRC on August 8, 2005. The RAI was related to the Florida Power & Light Company (FPL) proposed TS changes and the Westinghouse WCAP-15918-P that formed the basis for the amendment. The response to the RAI and the requested changes to the proposed TS are attached.

By letter L-2004-233 dated January 6, 2005 and pursuant to 10 CFR 50.90, FPL requested to amend Facility Operating License NPF-16 for St. Lucie Unit 2. The proposed amendment revises Technical Specification (TS) Section 3/4.4.5, Steam Generators, to allow repair of steam generator (SG) tubes by installing Westinghouse Electric LLC (Westinghouse) Alloy 800 leak limiting sleeves. The current Technical Specification requires SG tubes to be plugged when degradation is 40 percent through-wall penetration or greater, and does not provide for a method to repair a tube and maintain it in service. St. Lucie Unit 2 SGs are scheduled for replacement after Cycle 16 and the sleeve design discussed in this evaluation is not applicable to the replacement SG design. Therefore, the proposed changes will apply only to the original St. Lucie Unit 2 SGs to ensure they are maintained within the analyzed plugging limits. The proposed amendment included Westinghouse WCAP-15918-P, Revision 2, *Steam Generator Tube Repair For Combustion Engineering and Westinghouse Designed Plants With 3/4-inch Inconel 600 Tubes Using Leak Limiting Alloy 800 Sleeves*, dated July 2004.

Attachment 1 is a response to the RAI. The Determination of No Significant Hazards and Environmental Considerations provided with the original submittal remain bounding. Attachment 2 is a complete replacement of the marked up proposed Technical Specification changes based on the RAI responses. Attachment 3 is a complete replacement of the revised retyped TS pages based on this submittal.

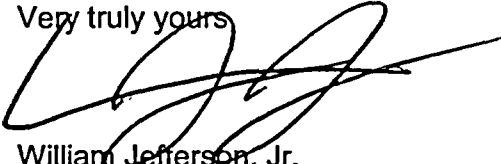
A001

St. Lucie Unit 2
Docket No. 50-389
L-2005-209 Page 2

The St. Lucie Facility Review Group (FRG) and the Florida Power & Light Company Nuclear Review Board (CNRB) have previously reviewed the proposed amendments. The revisions to the proposed TS pages included in this submittal are minor editorial changes requested by the NRC and did not require FRG or CNRB review.

In accordance with 10 CFR 50.91 (b)(1), a copy of the proposed amendment is being forwarded to the State Designee for the State of Florida. Please contact Terry Patterson at 772-467-7162 if there are any additional questions about this submittal.

Very truly yours

A handwritten signature in black ink, appearing to read 'WJ', with a long horizontal line extending to the right.

William Jefferson, Jr.
Vice President
St. Lucie Plant

WJ/GRM

Attachments

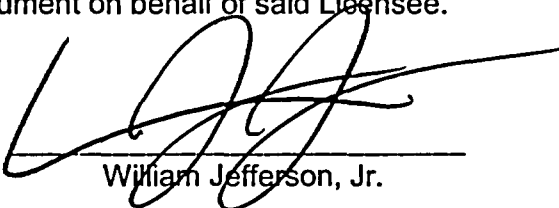
cc: Mr. William A. Passetti, Florida Department of Health

STATE OF FLORIDA)
)
COUNTY OF ST. LUCIE) ss.

William Jefferson, Jr. being first duly sworn, deposes and says:

That he is Vice President, St. Lucie Plant, for the Nuclear Division of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said Licensee.



William Jefferson, Jr.

STATE OF FLORIDA

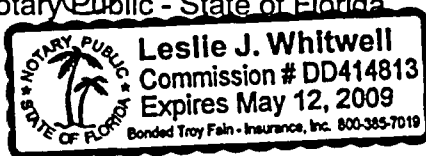
COUNTY OF ST LUCIE

Sworn to and subscribed before me

this 14 day of October, 2005
by William Jefferson, Jr., who is personally known to me.



Name of Notary Public - State of Florida



(Print, type or stamp Commissioned Name of Notary Public)

St. Lucie Unit 2
Docket No. 50-389
L-2005-209 Attachment 1 Page 1

ATTACHMENT 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

ST. LUCIE UNIT 2

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

ST. LUCIE NUCLEAR POWER PLANT, UNIT 2

Part 1 Questions Regarding the Proposed Technical Specifications

NRC Request 1:

Proposed Technical Specification (TS) Section 4.4.5.2.b.4 states that these inspections will include both the tube end and the sleeve. Please clarify why the "tube end" is referenced in this specific section.

FPL Response 1:

The use of "tube end" in this specification is an editorial error. Proposed TS 4.4.5.2.b.4 has been modified to remove "end" from the wording. It now states "These inspections will include both the tube and the sleeve."

NRC Request 2:

Proposed TS 4.4.5.4.a.10 states that the Westinghouse Alloy 800 sleeve design as described in WCAP-15918-P, Revision 2 is acceptable for tube repair. As written, it may be interpreted that other tube repair methods are also acceptable and may be used. Please modify this proposed TS to clearly state that Westinghouse Alloy 800 leak limiting sleeves are the only authorized sleeves to be installed at St. Lucie Unit 2.

FPL Response 2:

Proposed TS 4.4.5.4.a.10 has been modified to read "Tube Repair refers to sleeving with Westinghouse Leak Limiting Alloy 800 Sleeves as described in WCAP-15918-P Revision 2, which are used to maintain a tube in service. Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve. In addition, Leak Limiting Alloy 800 Sleeves that have a nickel band hard roll shall be plugged or removed from service after one cycle."

NRC Request 3:

In the proposed TSs, the repair sleeves are variously referred to as "Alloy 800 leak limiting sleeves, Alloy 800 sleeves, and sleeves." Modify the TSs to provide consistent terminology of the referenced sleeves (e.g., Alloy 800 leak limiting sleeves).

FPL Response 3:

The proposed TSs have been modified to standardize terminology using "Leak Limiting Alloy 800 Sleeves".

NRC Request 4:

In your C* license amendment request dated November 8, 2004 (L-2004-245, ML043150403), you proposed to revise TS Section 4.4.5.4 to define the depth of the required tube inspections and to clarify the plugging criteria within the tubesheet region. The final result of WCAP-16208-P for St. Lucie Unit 2 was a C* value of 10.1 inches. Your application states that any degradation below C* is shown by empirical test results and analyses to be acceptable, thereby precluding an event with consequences similar to a postulated tube rupture event. Given that Alloy 800 leak limiting sleeves may be installed at locations below the top 10 inches of the tubesheet and may be part of the reactor coolant pressure boundary, discuss your plans for modifying your TSs to require an inspection of the portion of the sleeve/tube below the C* distance.

FPL Response 4:

Proposed TS 4.4.5.4.a.10 has been modified to include a requirement that the pressure boundary portion of the original tube wall be inspected prior to installation of the sleeve. The proposed TS now reads "Tube Repair refers to sleeving with Westinghouse Leak Limiting Alloy 800 Sleeves as described in WCAP-15918-P Revision 2, which are used to maintain a tube in service. Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve. In addition, Leak Limiting Alloy 800 Sleeves that have a nickel band hard roll shall be plugged or removed from service after one cycle."

NRC Request 5:

The proposed footnote, "Applies to original steam generators only," is used in several TSs. It should be clarified, if necessary, to state that the Alloy 800 leak limiting sleeves will be plugged after one cycle of operation.

FPL Response 5:

Proposed TS 4.4.5.4.a.10 has been modified to include the content of the footnote and, therefore, the proposed footnote has been deleted. Accordingly, the use of asterisks (*) to indicate a footnote in various proposed TSs have also been removed. Proposed TS 4.4.5.4.a.10 now reads "Tube Repair refers to sleeving with Westinghouse Leak Limiting Alloy 800 Sleeves as described in WCAP-15918-P Revision 2, which are used to maintain a tube in service. Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the

sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve. In addition, Leak Limiting Alloy 800 Sleeves that have a nickel band hard roll shall be plugged or removed from service after one cycle."

NRC Request 6.a:

Proposed TS Section 4.4.5.3.4 states that all inservice Alloy 800 sleeves shall be inspected over the full length using a +Point™ coil or equivalent qualified technique during each refueling outage, and that the inspections will include both the tube end and the sleeve.

- 6.a. Historically, the U.S. Nuclear Regulatory Commission (NRC) staff has not specified a specific qualified technique for performing SG tube inspections. However, NRC staff interprets the SG tube inspection requirements in the TSs in conjunction with Appendix B to require that SG tube inspections be performed with qualified techniques capable of detecting all potential flaw types, which may be present at inspection locations. Given that your submittal specifically referenced the +Point™ coil as the qualified technique that will be used to perform the sleeve inspections, discuss the +Point™ coil's ability to detect all forms of potential degradation in the sleeve/tube assembly. For example, discuss the +Point™ coil's effectiveness to detect circumferential cracks oriented at 45° relative to the tube's axis, etc. Alternatively, please remove reference to the +Point™ coil in your proposed TSs.

FPL Response 6.a:

The reference to the +Point™ coil has been removed from the proposed TSs.

NRC Request 6.b:

Proposed TS Section 4.4.5.3.4 states that all inservice Alloy 800 sleeves shall be inspected over the full length using a +Point™ coil or equivalent qualified technique during each refueling outage, and that the inspections will include both the tube end and the sleeve.

- 6.b. Discuss your intent to perform eddy current inspections with qualified equipment and techniques that are capable of detecting all flaw types which may potentially be present in the pressure boundary of the sleeve/tube assembly.

FPL Response 6.b:

Consistent with the Staff's interpretation in NRC Generic Letter 2004-01, Requirements for Steam Generator Tube Inspections, FPL will perform eddy current inspections with qualified equipment and techniques that are capable of detecting all flaw types which may potentially be present in the pressure boundary of the sleeve/tube assembly.

Part 2 Questions and Observations Regarding Westinghouse Report WCAP-15918-P, Rev. 2, July 2004 (3/4 - inch sleeves)

NRC Request 1:

On Page 5 of Attachment 1, under "Sleeve Installation Requirements," there are references to WCAP-15918-NP, Revision 2, while other references to the WCAP are made according to WCAP-15918-P, Revision 2. Since the proprietary version of WCAP-15918 may contain additional information or requirements, please discuss the validity of the reference made to the non-proprietary version.

FPL Response 1:

The intended reference is to the proprietary version of WCAP-15918-P, which contains all pertinent information and requirements.

NRC Request 2:

On Page 11 of Attachment 1, it was stated that the Westinghouse WCAP-15918-P, Revision 2 was updated to incorporate comments, add operating experience, and modify the definition of pressure boundary. There is no indication in the list of changes to the WCAP of a change to the definition of pressure boundary. Discuss how Revision 2 modified the pressure boundary definition when compared to the pressure boundary definitions in Revision 0 and Revision 1. If the pressure boundary was redefined, provide the technical analysis and testing supporting this redefinition.

FPL Response 2:

The Record of Revision on page ii of WCAP 15918-P, Rev. 2 indicates that page 5-3 includes a "Modified definition of pressure boundary." This description was incorrectly worded. It should have read "Clarified definition of the pressure boundary" to explain that the words "... (either expansion or roll expansion transition)", were added to the end of the last paragraph to clarify that the pressure boundary includes both the hydraulic and rolled mechanical joint types. The definition of the pressure boundary has been maintained from previous versions.

NRC Request 3:

On Page 5-2, Section 5.1, Background, it is stated that flaw detection capability was demonstrated for flaws ≥ 60 -percent throughwall for the parent tube and ≥ 45 -percent for the sleeve, based on cracking, in order to provide an operational margin between the detection limit and the structural limit for defect growth.

Given that wall thinning or other volumetric forms of degradation may affect the sleeve, discuss the structural limits for these degradation mechanisms (including the assumptions on the axial/circumferential extent and the basis for these assumptions). Confirm that the techniques employed during the inspection will be capable to detect sleeve degradation at or below these structural limits. In addition, discuss the possibility that the flaw could grow beyond these limits in the period of time between inspections.

FPL Response 3:

The structural limit for the sleeve, as stated on page 5-2, is for cracking as this is the worst case and most likely degradation mechanism. For the current operating chemistry regime utilized by St. Lucie Unit 2, thinning or volumetric degradation is not postulated to be a credible degradation mechanism in the sleeve. Nevertheless, wall thinning or volumetric degradation due to wear/wastage would allow an even greater reduction in wall thickness, of 55%, as described in the structural analysis calculation in Section 8.2 of WCAP-15918-P.

Further, thinning is expected to produce a greater probability of detection than cracking mechanisms based on the affected material volume. Sufficient sensitivity to volumetric type flaws such as general wall thinning was demonstrated in the technique qualification (Ref. 5.3.1 of WCAP-15918-P) by detection of the calibration standard ASME machined flaws in both the sleeve and parent tube. The 20%TW OD flat bottom hole located on the sleeve calibration standard is readily detectable with the +Point coil, which is well below the structural analysis calculation in Section 8.2 of WCAP-15918-P. Although volumetric degradation is not considered to be a credible degradation mechanism, this detection capability is expected to allow sufficient margin for flaw growth between inspections.

NRC Request 4:

Figure 8-2, System Schematic for "Worst" Case CE Plant with Effective Length Between Lower Joint and Last Upper Joint, is repeated on page 8-57 in place of Figure 8-3. Please provide a copy of Figure 8-3 or confirm that Figure 8-3 is not applicable to St. Lucie Unit 2.

FPL Response 4:

Figure 8-2 is mistakenly repeated on page 8-57 in WCAP-15918-P, Rev. 2 in place of Figure 8-3. Figure 8-3 however, as shown in the Table of Contents, List of Figures on page xiii of the WCAP is applicable to Westinghouse "D" & "E" Plants. Thus, Figure 8-3 is not applicable to St. Lucie Unit 2.

ATTACHMENT 2

ST. LUCIE UNIT 2 MARKED-UP TECHNICAL SPECIFICATION PAGES

Pages

3/4 4-12

3/4 4-14

3/4 4-15

3/4 4-17

TS PAGE INSERTS

Insert A TS Page 3/4 4-12

4. All Inservice **Leak Limiting Alloy 800** sleeves shall be inspected over their full length during each refueling outage. These inspections will include both the tube and the sleeve.

Insert B for TS Page 3/4 4-14

6.
 6. Plugging (or Repair) Limit means the imperfection depth at which the tube shall be removed from service by plugging (or repaired by sleeving in the affected area because it may become unserviceable prior to the next inspection). The plugging (or repair) limit imperfection depths are specified as follows:
 - i. Original tube wall: 40% of the nominal tube wall thickness. The Plugging or Repair Limit is not applicable in the portion of the tube that is greater than 10.1 inches below the bottom of the hot leg expansion transition or top of the tubesheet, whichever is lower, to the tube end. Degradation detected between 10.1 inches below the bottom of the hot leg expansion transition or top of the tubesheet, whichever is lower, and the bottom of the hot leg expansion transition or top of the tubesheet, whichever is higher, shall be plugged or repaired on detection.
 - ii. Westinghouse **Leak Limiting Alloy 800** leak limiting sleeve: Plug on detection of any service induced imperfection, degradation, or defect in the (a) sleeve and/or (b) pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint).

Insert C for TS Pages 3/4 4-15

10. Tube Repair refers to sleeving with **Westinghouse Leak Limiting Alloy 800** sleeves as described in **WCAP-15918-P Revision 2**, which are used to maintain a tube in service. **Leak Limiting Alloy 800 Sleeves** are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve. In addition, **Leak Limiting Alloy 800 Sleeves** that have a nickel band hard roll shall be plugged or removed from service after one cycle.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

Insert A

1. All nonplugged tubes that previously had detectable wall penetrations (greater than 20%).
 2. Tubes in those areas where experience has indicated potential problems.
 3. A tube inspection (pursuant to Specification 4.4.5.4.a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.
- c. The tubes selected as the second and third samples (if required by Table 4.4-2) during each inservice inspection may be subjected to partial tube inspection provided:
1. The tubes selected for these samples include the tubes from those areas of the tube sheet array where tubes with imperfections were previously found.
 2. The inspections include those portions of the tubes where imperfections were previously found.

The results of each sample inspection shall be classified into one of the following three categories:

<u>Category</u>	<u>Inspection Results</u>
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.4.5.4 Acceptance Criteria

a. As used in this Specification

1. Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube wall thickness, if detectable, may be considered as imperfections.
2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube.
3. Degraded Tube means a tube containing imperfections greater than or equal to 20% of the nominal wall thickness caused by degradation.
4. % Degradation means the percentage of the tube wall thickness affected or removed by degradation.
5. Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.
6. Plugging Limit means the imperfection depth at or beyond which the tube shall be removed from service and is equal to 40% of the nominal tube wall thickness.
7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.5.3c., above.
8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg.
9. Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline

Insert B

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

Insert C

- b. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 4.4-2.

4.4.5.5 Reports

or repair

or repaired

- a. Within 15 days following the completion of each inservice inspection of steam generator tubes, the number of tubes plugged in each steam generator shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2.
- b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a Special Report pursuant to Specification 6.9.2 within 12 months following completion of the inspection. This Special Report shall include:
1. Number and extent of tubes inspected.
 2. Location and percent of wall-thickness penetration for each indication of an imperfection.
 3. Identification of tubes plugged

and sleeves

or repaired.

TABLE 4.4-2
STEAM GENERATOR TUBE INSPECTION

1st SAMPLE INSPECTION			2nd SAMPLE INSPECTION		3rd SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G.	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug defective tubes and inspect additional 2S tubes in this S.G. or repair	C-1	None	N/A	N/A
			C-2	Plug defective tubes and inspect additional 4S tubes in this S.G.	C-1	None
					C-2	Plug defective tubes
			C-3	Perform action for C-3 result of first sample.	C-3	Perform action for C-3 result of first sample
					N/A	N/A
	C-3	Inspect all tubes in this S.G., plug defective tubes and inspect 2S tubes in each other S.G.	All other S.G.s are C-1	None	N/A	N/A
			Some S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample.	N/A	N/A or repair
			Additional S.G. is C-3	Inspect all tubes in each S.G. and plug defective tubes.	N/A	N/A

$S = 3 \frac{N}{n} \%$ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.

ATTACHMENT 3

ST. LUCIE UNIT 2 REPLACEMENT
RETYPE TECHNICAL SPECIFICATION PAGES

The attached retype reflects the currently issued version of the Technical Specifications. Pending Technical Specification changes or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed retype. The enclosed retype should be checked for continuity with Technical Specifications prior to issuance.

Pages

3/4 4-12

3/4 4-14 (text reformatted)

3/4-14a (Overflow from page 3/4-14)

3/4 4-15

3/4 4-17

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

1. All nonplugged tubes that previously had detectable wall penetrations (greater than 20%).
 2. Tubes in those areas where experience has indicated potential problems.
 3. A tube inspection (pursuant to Specification 4.4.5.4.a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.
 4. All Inservice Leak Limiting Alloy 800 sleeves shall be inspected over their full length during each refueling outage. These inspections will include both the tube and the sleeve.
- c. The tubes selected as the second and third samples (if required by Table 4.4-2) during each inservice inspection may be subjected to partial tube inspection provided:
1. The tubes selected for these samples include the tubes from those areas of the tube sheet array where tubes with imperfections were previously found.
 2. The inspections include those portions of the tubes where imperfections were previously found.

The results of each sample inspection shall be classified into one of the following three categories:

<u>Category</u>	<u>Inspection Results</u>
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.4.5.4 Acceptance Criteria

a. As used in this Specification

1. Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube wall thickness, if detectable, may be considered as imperfections.
2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube.
3. Degraded Tube means a tube containing imperfections greater than or equal to 20% of the nominal wall thickness caused by degradation.
4. % Degradation means the percentage of the tube wall thickness affected or removed by degradation.
5. Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.
6. Plugging (or Repair) Limit means the imperfection depth at which the tube shall be removed from service by plugging (or repaired by sleeving in the affected area because it may become unserviceable prior to the next inspection). The plugging (or repair) limit imperfections depths are specified as follows:
 - i. Original tube wall: 40% of the nominal tube wall thickness. The Plugging or Repair Limit is not applicable in the portion of the tube that is greater than 10.1 inches below the bottom of the hot leg expansion transition or top of the tubesheet, whichever is lower, to the tube end. Degradation detected between 10.1 inches below the bottom of the hot leg expansion transition or top of the tubesheet, whichever is lower, and the bottom of the hot leg expansion transition or top of the tubesheet, whichever is higher, shall be plugged or repaired on detection.
 - ii. Westinghouse Leak Limiting Alloy 800 leak limiting sleeve: Plug on detection of any service induced imperfection, degradation, or defect in the (a) sleeve and/or (b) pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint).

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.4.5.4 Acceptance Criteria (Continued)

a. (Continued)

7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.5.3c., above.
8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg.
9. Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

10. Tube Repair refers to sleeving with Westinghouse Leak Limiting Alloy 800 sleeves as described in WCAP-15918-P Revision 2, which are used to maintain a tube in service. Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve. In addition, Leak Limiting Alloy 800 Sleeves that have a nickel band hard roll shall be plugged or removed from service after one cycle.
- b. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug or repair all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 4.4-2.

4.4.5.5 Reports

- a. Within 15 days following the completion of each inservice inspection of steam generator tubes, the number of tubes plugged or repaired in each steam generator shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2.
- b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a Special Report pursuant to Specification 6.9.2 within 12 months following completion of the inspection. This Special Report shall include:
 1. Number and extent of tubes and sleeves inspected.
 2. Location and percent of wall-thickness penetration for each indication of an imperfection.
 3. Identification of tubes plugged or repaired.

TABLE 4.4-2
STEAM GENERATOR TUBE INSPECTION

1st SAMPLE INSPECTION			2nd SAMPLE INSPECTION		3rd SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G.	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug or repair defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N/A	N/A
			C-2	Plug or repair defective tubes and inspect additional 4S tubes in this S.G.	C-1	None
					C-2	Plug or repair defective tubes
					C-3	Perform action for C-3 result of first sample
			C-3	Perform action for C-3 result of first sample.	N/A	N/A
	C-3	Inspect all tubes in this S.G., plug or repair defective tubes and inspect 2S tubes in each other S.G.	All other S.G.s are C-1	None	N/A	N/A
			Some S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample.	N/A	N/A
			Additional S.G. is C-3	Inspect all tubes in each S.G. and plug or repair defective tubes.	N/A	N/A

$S = 3 \frac{N}{n} \%$ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.